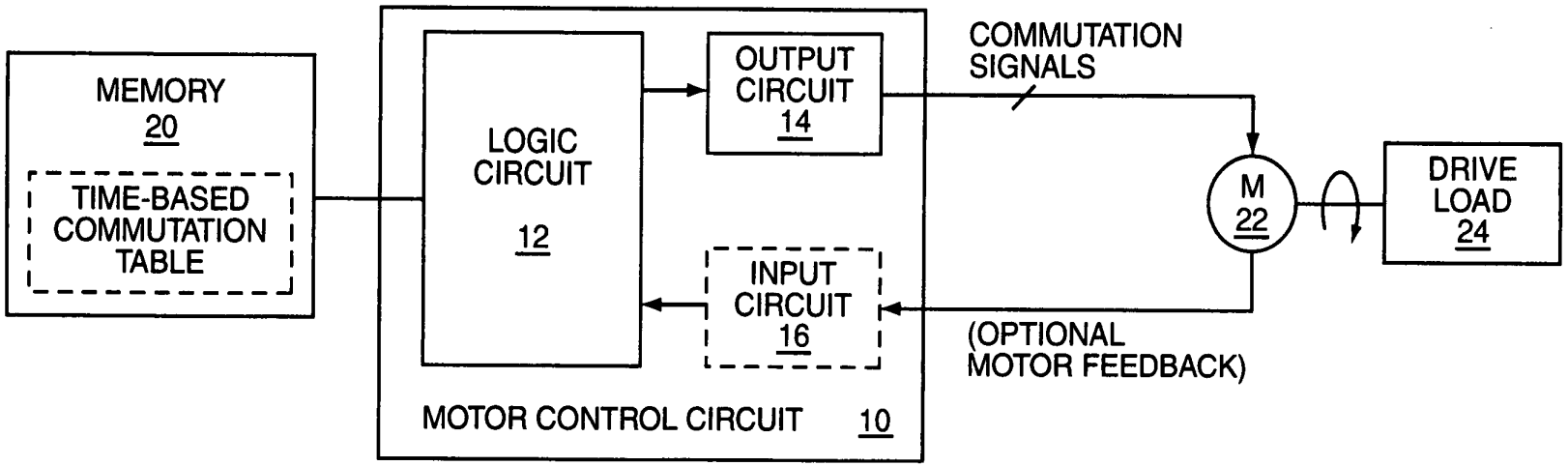
MEMORY
20
TIME-BASED
COMMUTATION
TABLE
LOGIC
CIRCUIT
12
OUTPUT
CIRCUIT
14
INPUT
CIRCUIT
16
MOTOR CONTROL CIRCUIT
10
COMMUTATION
SIGNALS
(OPTIONAL
MOTOR FEEDBACK)
M
22
DRIVE
LOAD
24

FIG. 1

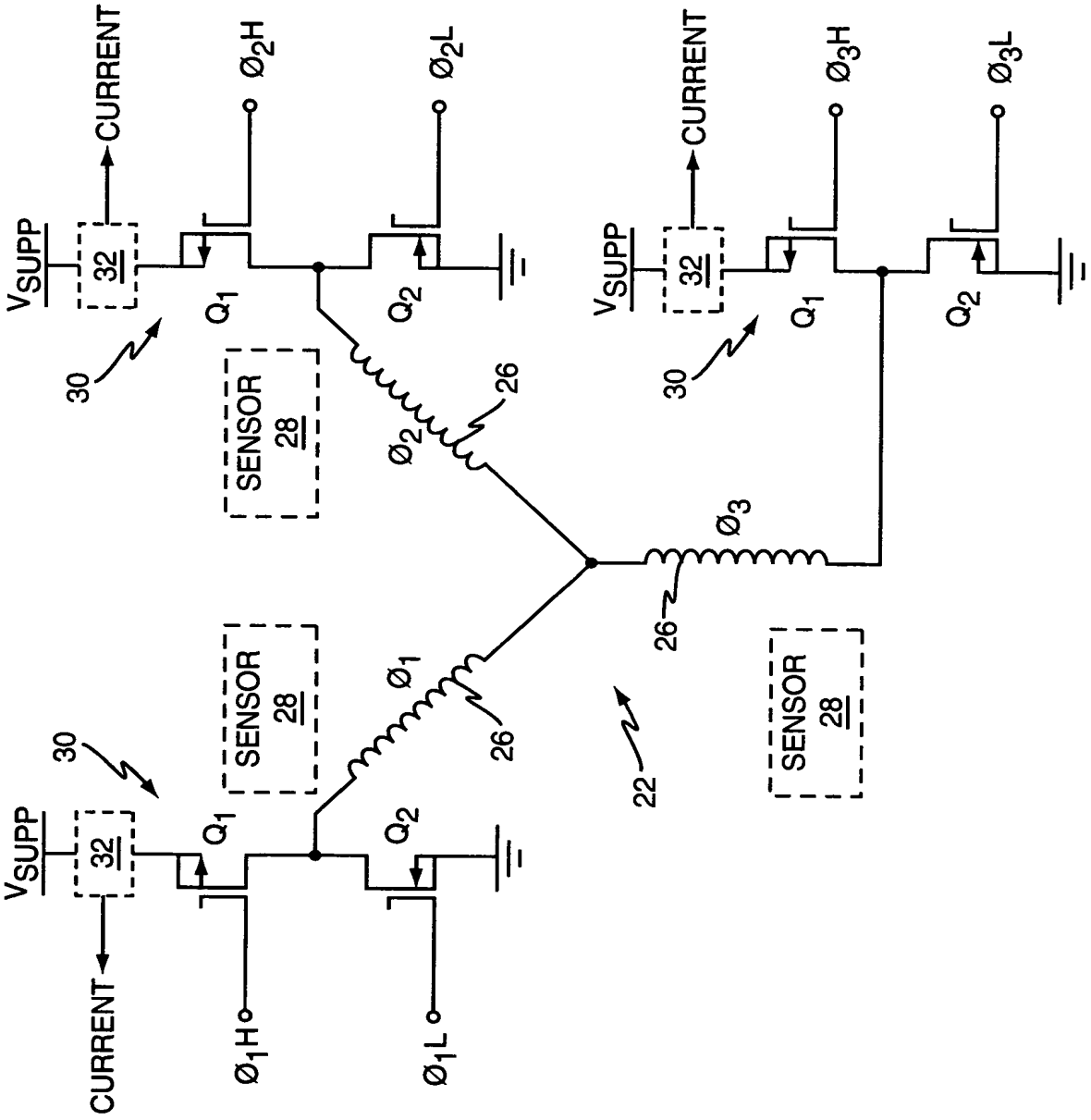
VSUPP
32
CURRENT
Ø2H
Ø2L
Q1
Q2
30
SENSOR
28
26
Ø2
Ø3
Ø1
22
Ø1H
Ø1L
Ø3H
Ø3L

FIG. 2

STATE	DIR	POSITION STATE			COMMUTATION STATE SIGNALS					
		$Ø_1$	$Ø_2$	$Ø_3$	H $Ø_1$	L	H $Ø_2$	L	H $Ø_3$	L
1	CCW	LO	HI	LO	ON	OFF	OFF	PWM	OFF	OFF
2	CCW	LO	HI	HI	ON	OFF	OFF	OFF	OFF	PWM
3	CCW	LO	LO	HI	OFF	OFF	ON	OFF	OFF	PWM
4	CCW	HI	LO	HI	OFF	PWM	ON	OFF	OFF	OFF
5	CCW	HI	LO	LO	OFF	PWM	OFF	OFF	ON	OFF
6	CCW	HI	HI	LO	OFF	OFF	OFF	PWM	ON	OFF
1	CW	LO	LO	HI	OFF	OFF	OFF	PWM	ON	OFF
2	CW	LO	HI	HI	OFF	PWM	OFF	OFF	ON	OFF
3	CW	LO	HI	LO	OFF	PWM	ON	OFF	OFF	OFF
4	CW	HI	HI	LO	OFF	OFF	ON	OFF	OFF	PWM
5	CW	HI	LO	LO	ON	OFF	OFF	OFF	OFF	PWM
6	CW	HI	LO	HI	ON	OFF	OFF	PWM	OFF	OFF

STORED COMMUTATION TABLE (3Ø EMBODIMENT)

FIG. 3

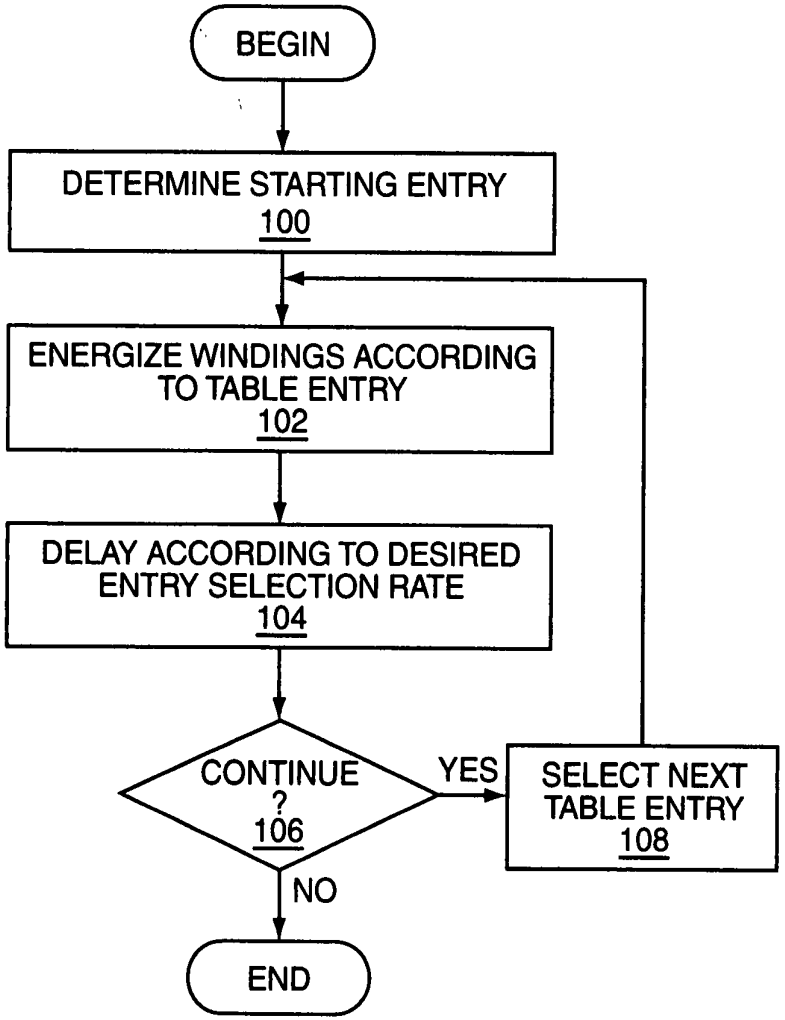
BEGIN
DETERMINE STARTING ENTRY
100
ENERGIZE WINDINGS ACCORDING TO TABLE ENTRY
102
DELAY ACCORDING TO DESIRED ENTRY SELECTION RATE
104
CONTINUE ?
106
YES
SELECT NEXT TABLE ENTRY
108
NO
END

FIG. 4

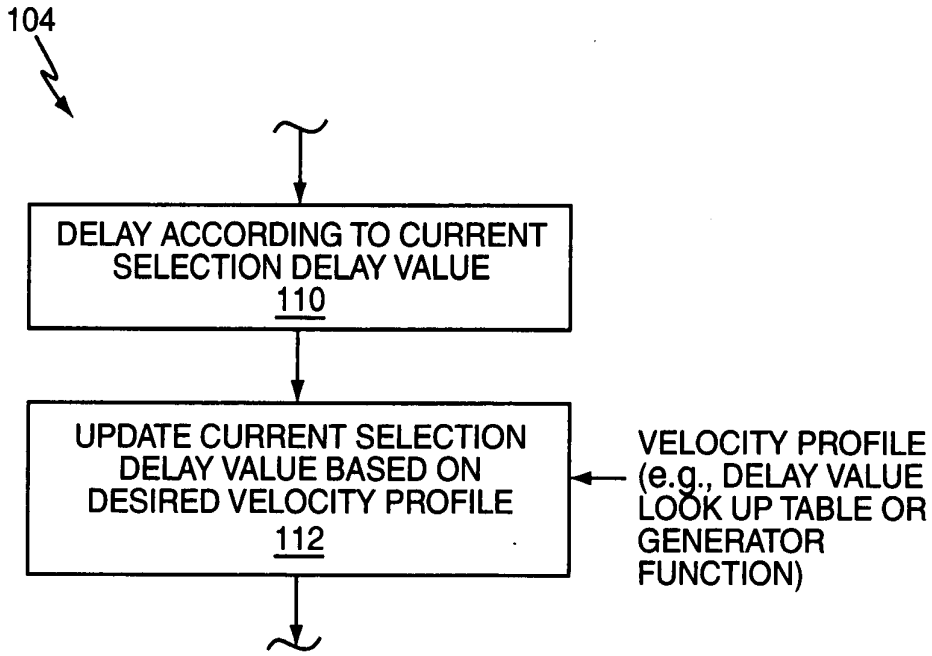
104
DELAY ACCORDING TO CURRENT SELECTION DELAY VALUE
110
UPDATE CURRENT SELECTION DELAY VALUE BASED ON DESIRED VELOCITY PROFILE
112
VELOCITY PROFILE (e.g., DELAY VALUE LOOK UP TABLE OR GENERATOR FUNCTION)

FIG. 5

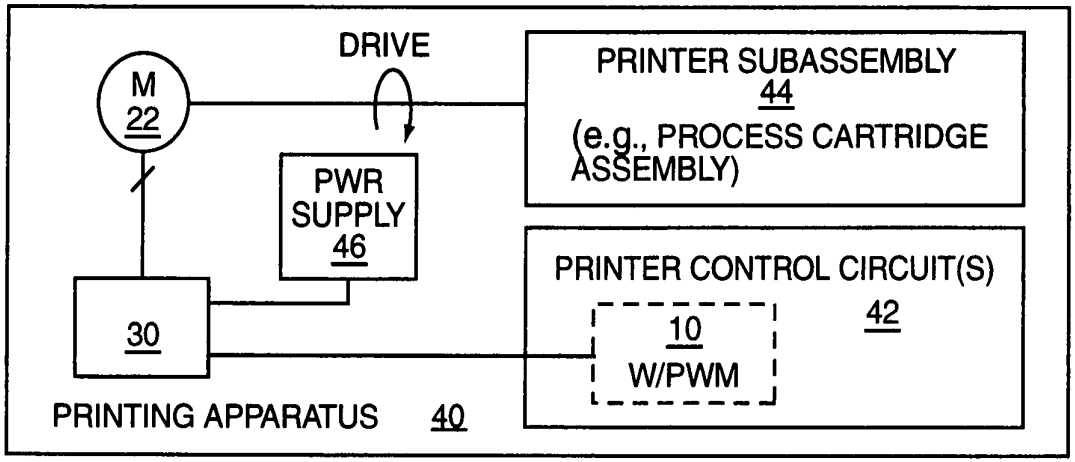

FIG. 6

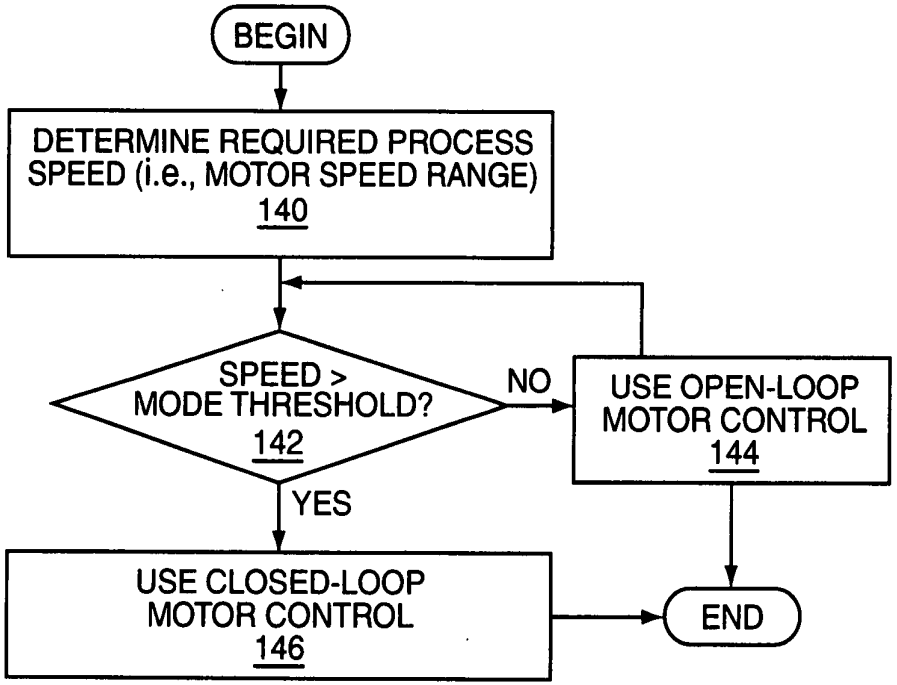

FIG. 7

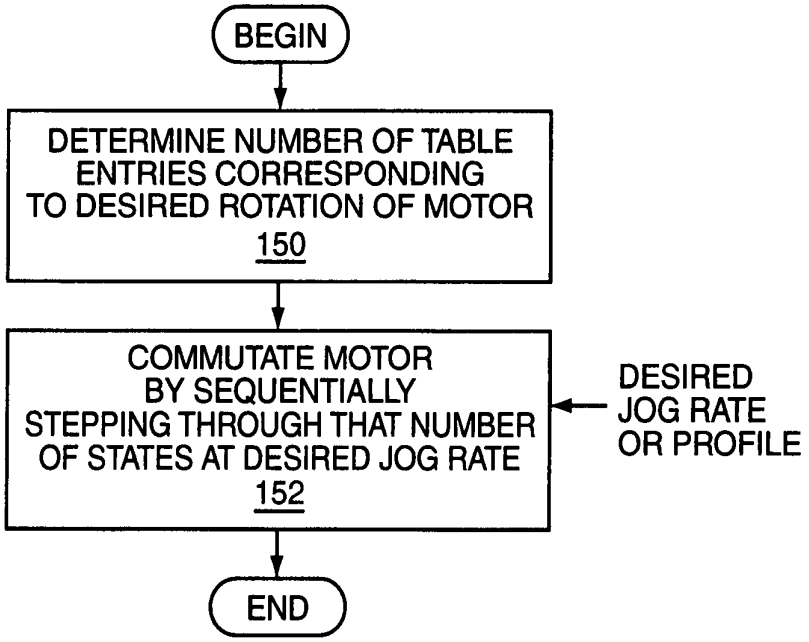

FIG. 8

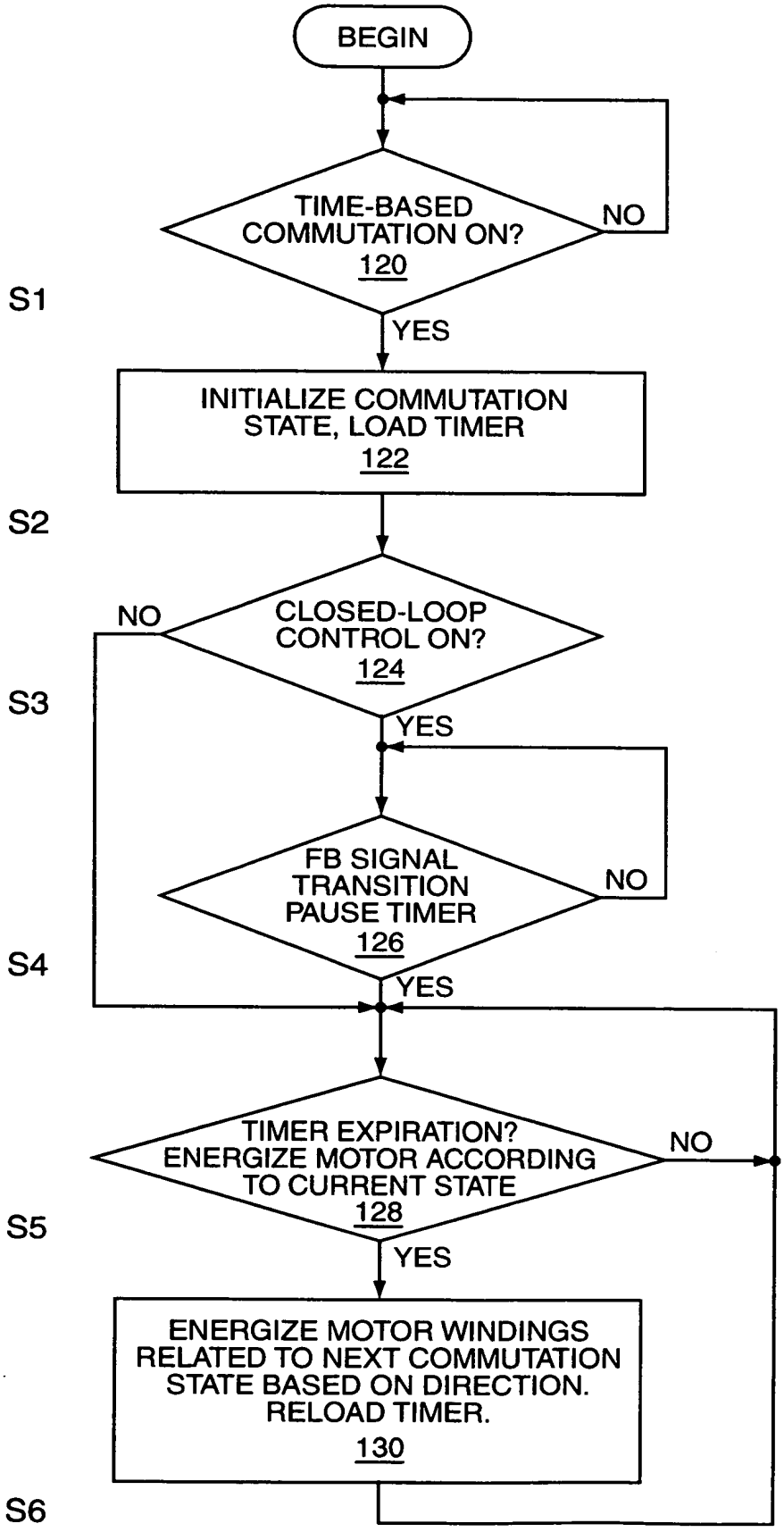
BEGIN
TIME-BASED COMMUTATION ON?
120
NO
YES
S1
INITIALIZE COMMUTATION STATE, LOAD TIMER
122
S2
CLOSED-LOOP CONTROL ON?
124
NO
YES
S3
FB SIGNAL TRANSITION PAUSE TIMER
126
NO
YES
S4
TIMER EXPIRATION? ENERGIZE MOTOR ACCORDING TO CURRENT STATE
128
NO
YES
S5
ENERGIZE MOTOR WINDINGS RELATED TO NEXT COMMUTATION STATE BASED ON DIRECTION. RELOAD TIMER.
130
S6

FIG. 9